APPLIED TROPHOLOGY, VOLUME 8

Applied Trophology, Vol. 8, No. 11 (November 1964)

Comments on Saccharin; Facts About Proteins; Cholesterol-Lowering Effects of Rolled Oat; Medical Students Fail to Eat Well

Contents in this issue:

- "Additional Comments on Saccharin,"
- "A Few Facts About Proteins,"
- "Cholesterol-Lowering Effects of Rolled Oats,"
- "Medical Students Fail to Eat Well."

The following is a transcription of the November 1964 issue of Dr. Royal Lee's *Applied Trophology* newsletter, originally published by Standard Process Laboratories.

Additional Comments on Saccharin

In our June 1964 issue of *Applied Trophology*, we made some "Comments on Saccharin" to the effect that it was a chemical having no food value and that its indiscriminate use as a sweetening agent should be condemned. It now appears that the newer chemical sweeteners such as the cyclamates and sucralys selling under various trade names in grocery and drugstores and now widely used as a sweetener in diet beverages are also being more closely observed. In view of the fact that about seven million pounds of these benzine derived sweeteners were consumed in low-calorie beverages and foods last year, doubts as to their safety in unlimited amounts have arisen.

This doubt was expressed in the last semimonthly newsletter known as the *Medical Letter*, which is described as a nonprofit publication with a mailing list of 25,000 physicians who are advised as to recent drug evaluations, as prepared by leading medical investigators.

This critical article appeared in the September 11 issue of *Medical Letter*:

"Until the many unanswered questions with respect to the toxicity of saccharin (an older sweetener) and cyclamate have been answered, the current promotion and extension of use of these agents are regarded as against the public interest, and action by the medical profession, health authorities and federal agencies to inform and protect the consumer is in order!"

A Few Facts About Proteins

A protein cannot be rated in nutritional value by any quantitative means alone. Its content of the critical amino acids may be low, in which case its nutritional value may be almost nil.

The essential amino acids must be *all present* for any of the food protein to be nutritionally significant. If, for example, only one of the essential amino acids is missing, none of the rest in the daily food pattern is of use to the body. They must be burned for their calorie value or eliminated as waste products, with a consequent burden on the liver and kidneys.

One of the most critical amino acids is *tryptophane*, with a probable daily requirement of 2/5 of one percent of the total food.

Tryptophane is the precursor of niacinamide. It is a critical factor in the formation of antibodies, as a part of the defense mechanism.[1]

Tryptophane deficiency aggravates dental caries.

Tryptophane and lysine are destroyed by cooking or pasteurization temperatures if sugars are present, glucose or lactose.[2,3,4,5]

Lysine is particularly important by reason of its effect in promoting the "specific dynamic effect" of proteins, dilutions of one part in a million of lysine being of "definite effect in stimulating the metabolic rate."[6]

"The average human male requires only .2 to .25 grams of l-tryptophane daily."[7]

To add up these facts, it is obvious that very small quantities of the critical amino acids so easily destroyed by cooking may be of high importance to the person who shows the possible symptoms of deficiency. These are:

1. Lowered resistance to infectious disease. If less than the one-fifth gram of tryptophane known to be essential to the human male is not available, antibodies to such disease germs as diphtheria.[1]
2. Tooth decay is greatly aggravated by a deficiency of lysine when refined foods or pasteurized milk are a part of the diet in animal tests.[8]
3. A deficiency of tryptophane may contribute to pyorrhea and arthritis through failure of the protein matrix in bone to form, without which it cannot calcify or regenerate. Experimentally demonstrated by Francis M. Pottenger Jr. in his extensive animal experiments.[9]
4. Tryptophane prevents and corrects niacin deficiency symptoms.[10]
5. Tryptophane deficiency in test animals specifically brings on cataracts of the.[11]
6. Also, parallel reactions may be corneal vascularization, alopecia, hypochromic anemia, tooth enamel defects, testicular degeneration, sterility in the female.[12]

This short review of a few excerpts from current literature shows how difficult it may be to generalize in the science of protein nutrition at the present stage of information. Most definitely, it is not logical to say that the small amounts of a protein may be useless nutritionally.

In the June 27, 1964, issue of *Science News Letter* is a review of research on anti-polio substances in foods. Conch protein, for instance, is found to be high in this newly discovered factor, along with abalone, oysters, clams, and squid.

It was found some years ago that the conch was highly regarded as a protein for older people in Key West, Florida, where conch is at times available in the fish markets. It was obviously easily assimilated by the old person whose protein assimilation was impaired by a reduced enzyme and hydrochloric acid supply in their stomach.

Later a commercial source of conch was located. Just as the Indians in the high plateaus of the Andes made annual trips to the sea for iodine-bearing seafoods like kelp to supply their pregnant females with something known to prevent goiter, many persons were aware of the benefits of conch before the reason was known. Lemon juice was known to prevent and cure scurvy hundreds of years before it was discovered to contain vitamin C complex, and long before the medical profession was willing to admit that the lemon juice was actually effective. Thus, the benefits often precede detailed scientific knowledge of the reasons for them.

Certainly, no modern law can be fair if it prohibits the individual to choose his own foods that may save his life simply because medical science has failed to find the reason. The only possible justification for police state control is the possibility of harm, and any food that has a clean history of use for many years cannot be suspected as potentially harmful without concrete evidence to support such a position.

References

1. *Science News Letter*, 226, April 13, 1957.
2. *Annual Review of Biochemistry*, 20:317, 1951.
3. *American Journal of Clinical Nutrition*, 362, July-August 1957.
4. Block, et al. *The Amino Acid Content of Proteins and Foods*, p. 278. Charles C. Thomas, 1938.
5. Stevens and McGinnis. *Biol. Chem.*, 171:431, 1947.
6. *Some Essential Aspects of the Cancer Problem*, p.168. Science Press, 1937, Henry Baldwin Ward, Editor.
7. *Amino Acids and Proteins*, p. 592. Charles C. Thomas, 1951.
8. Bavetta and McClure. *Nutrition*, 63(1):107–117.
9. Lee Foundation Report No. 27.
10. *Proteins and Amino Acids in Nutrition*, p. 113. Reinhold, 1948.
11. Paul R. Cannon, *Proteins and Amino Acid Deficiencies*, p. 38. Charles C. Thomas,
12. *Mountain States Druggist*, p. 26, June 1945.

Cholesterol-Lowering Effects of Rolled Oats

The Lancet
Letters to the Editor
August 10, 1963

Sir,

If rats are fed on a semi-purified diet containing 15 percent casein, 15 percent hydrogenated fat, and adequate with respect to calories, vitamins, and minerals, a very high level of cholesterol in the blood is obtained on supplementing the diet with 1 percent cholesterol and 0.2 percent cholic acid. This hypercholesterolaemic diet has proved useful in studying possible cholesterol-lowering properties of dietary and other factors.

In order to compare the hypocholesterolaemic effect of some cereals and cereal products, experiments were carried out with albino rats fed the above diet with 25 percent of the cereal to be studied incorporated at the expense of an equal amount of wheat starch. The products under investigation were fed to rats also in combination with whole milk powder, mixed in the same ratio as used for human consumption in the Netherlands, and incorporated in the diet at a level of 25 percent.

Each of the diets was fed ad libitum to a group of twelve newly weaned albino rats (six males and six females) for an experimental period of four weeks. Thereafter total blood cholesterol of the individual animals was determined by the method of Carr and Drekter.[1] To improve the reliability of the results the complete series of diets was tested three times in succession in the same way.

The mean values for serum-cholesterol are given in table I as a percentage of the mean value of the control group.

Table I: Total serum-cholesterol of rats fed hypercholesterolemic diets supplemented with cereals or cereal milk mixtures.

Substitution for 25% of wheat starch in basal diet	Serum-cholesterol (percent of group fed basal diet)
None	100±8.6
Barley	49.6±3.0
Rice	82.8±7.9
Instant wheat product	43.4±3.6
Rolled oats	27.4±3.1
Whole wheat bread	40.9±3.7
Barley and whole milk powder	53.2±4.1
Rice and whole milk powder	54.7±5.1
Instant wheat product and whole milk powder	46.5±5.0
Rolled oats and whole milk powder	37.7±4.6
Whole wheat bread and whole milk powder	41.0±2.8
Whole milk powder	51.7±4.5

Each of the supplements caused a significant decrease in the serum-cholesterol level except for rice. The lowest level was obtained with rolled oats. The mixture of rolled oats and milk powder was less effective than rolled oats alone, obviously as a result of the added milk fat and of the smaller amount of oat product in the diet.

The striking hypocholesterolaemic effect of rolled oats observed in rats prompted us to carry out an experiment with human volunteers.

Twenty-one healthy male volunteers, thirty to fifty years of age, were asked to eat daily, during an experimental period of three weeks, 300 g of an experimental breakfast containing 140 g of rolled oats instead of the normal bread in the diet. The total cholesterol content of the blood serum was determined at weekly intervals, starting three weeks before the experimental period and continuing during three weeks thereafter. The mean values obtained are presented in the accompanying figure.

The cholesterol level of the volunteers showed a significant decrease during the oat period from 251 to 239 mg per 100 ml after seven days and reached a value of 223 mg per 100 ml after three weeks. Replacing the bread containing rolled oats by normal bread was followed by an immediate rise in serum cholesterol resulting in a mean value of 246 mg per 100 ml after two weeks.

One might expect the relatively high fat content of the rolled oats, 35 percent of which is polyunsaturated fatty acids, to be at least partly responsible for the hypocholesterolaemic effect. To get an idea of the contribution of the lipids and the other components in the observed activity, rolled oats were extracted with ether-ethanol 1:1. The extraction fat and the defatted material were incorporated into hypercholesterolaemic rations at levels corresponding to 25 percent of the starting material. For comparison, diets were prepared containing defatted rolled oats supplemented with hydrogenated coconut oil or corn oil, the supplements being added in amounts equal to the amount of fat extracted from rolled oats. Table II shows that all fractions or groups of twelve albino rats for an experimental period of four weeks.

Table II: Average serum-cholesterol level of rats fed on hypercholesterol diets containing different supplements.

Substitution for wheat starch in basal diet	Serum-cholesterol (percent of group fed basal diet)
None	100
Rolled oats (25%)	18
Fat from rolled oats (1.8%)	46
Defatted rolled oats (23.2%)	39
Defatted rolled oats (23.2%); hydrogenated coconut oil (1.8%)	46
Defatted rolled oats (23.2%); corn oil (1.8%)	20

From the results as shown in table II it appears that the small amount of extracted fat from rolled oats exerted nearly the same cholesterol-lowering effect as do the much larger amount of the defatted material, whereas rolled oats as such were considerably more effective. Obviously both the fat and the nonfat material contribute to the activity of rolled oats to approximately the same extent. Substituting the fat from rolled oats by hydrogenated coconut oil resulted in a considerably higher cholesterol level, whereas with corn oil the value obtained was nearly as low as with untreated rolled oats. Thus, the hypocholesterolaemic effect of the fat component of rolled oats is comparable to that of corn oil.

—*A.P. De Groot, R. Luyken, N.A. Pikaar, Central Institute for Nutrition and Food Research TNO, Utrecht, The Netherlands.*

Reference

1. Carr, J.J., and Drekter, I.J. J. Clin. Chem, 2, 353, 1956. [Reference includes graph of mean serum-cholesterol level in 21 male volunteers. See original document for data.]

Medical Students Fail to Eat Well

The attitude of most U.S. nutritionists is that only teenagers, pregnant women, and elderly people not under a doctor's supervision lack needed nutrients in their diet.

However, Miss Helen Hair of Jefferson Medical College, who spoke at the 13th Annual Health Conference of the Pennsylvania Department of Health, at their recent meeting at Pennsylvania State College, says her studies show that young adults, especially medical students, should also be listed among the poor eaters.

Miss Hair reached this conclusion following her survey of the eating habits of fourth year medical students at Jefferson Medical College. These findings were compared with a similar study of the eating habits of senior citizens aged 60 to 83 and it was found each group shared the same nutritional faults. Both groups believed they were getting needed food values when actually they were eating foods high in calories and nothing else. She found medical students less interested in food values and more interested in calorie counts. They did a lot of nibbling between meals due to the fact that they only had coffee or juice for breakfast or had skipped breakfast entirely.

This entry was posted in Applied Trophology, Volume 8 and tagged artificial sweeteners, cereal products (dangers of), cholesterol, dental health and nutrition, medicine (allopathic), overcooking foods (dangers of), raw foods, saccharin, tryptophane, vitamin B3 (niacin).

← Applied Trophology, Vol. 8, No. 8 (August 1964)

Applied Trophology, Vol. 8, No. 12 (December 1964) →

Leave a Reply

You must be logged in to post a comment.

Connect with:

Secured by OneAll Social Login

Share:

HISTORICAL ARCHIVE SEARCH

Search For...

GO!!

YOUR CART

FEATURED ARCHIVE SUBJECTS

Lee Foundation for Nutritional Research
acid-alkaline balance
digestive health
heart disease
low-carb diet
prenatal nutrition
processed foods and disease
raw foods
soil health and nutrition

RECENT POSTS

Good to Know: Understanding Standard Process Combination Products
22 hours ago

Happy Thanksgiving from SRP!
1 week ago

Dr. Dority on the 33 Royal Principles of Health #29. Interference with Transmission of Innate Forces
2 weeks ago

Why Phyllis Quinn's Slow Cook Gourmet Is an SRP Fave
3 weeks ago

Dr. Dority on the 33 Royal Principles of Health #28. The Conductors of Innate Forces
4 weeks ago

Easy Liver Pate for All (with GAPS Stages)!
1 month ago

CONTACT US

+1 (866) 407-9323
+1 (970) 461-6602
5740 Boxing Drive, Loveland, CO, 80538
P.O. Box 270091, Fort Collins, CO, 80527
info@selenerivers.com
Guest Blog Post Submission Form

PRODUCT SEARCH

Search for...

GO!

YOUR CART

Good to Know: Understanding Standard Process Combination Products
22 hours ago

Happy Thanksgiving from SRP!
1 week ago

Dr. Dority on the 33 Royal Principles of Health #29. Interference with Transmission of Innate Forces
2 weeks ago

Why Phyllis Quinn's Slow Cook Gourmet Is an SRP Fave
3 weeks ago

Search Historical Archives...

SEARCH

FEATURED ARCHIVE SUBJECTS

Lee Foundation for Nutritional Research
acid-alkaline balance
digestive health
heart disease
low-carb diet
prenatal nutrition
processed foods and disease
raw foods
soil health and nutrition